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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Flehr Hohbach Test Albritton & Herbert LLP
Four Embarcadero Center
Suite 3400
San Francisco, CA 94111-4187

EXAMINER
FORMAN, BETTY J

ART UNIT	PAPER NUMBER
1634	

DATE MAILED: 04/15/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/500,555	STUELPNAGEL ET AL.	
	Examiner	Art Unit	
	BJ Forman	1634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 February 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12,18-27 and 44-51* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12,18-27 and 44-51* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3 February 2003 has been entered.

2. This action is in response to papers filed 3 February 2003 in which claims 2, 48 and 49 were amended and claims 50-51 were added. All of the amendments have been thoroughly reviewed and entered. The previous objection to Claims 48-49 in the Office Action dated 1 November 2002 is withdrawn in view of the amendments. The previous rejections under 35 U.S.C. 103(a) are maintained. All of the arguments have been thoroughly reviewed and are discussed below. New grounds for rejection are discussed.

Claims 1-12, 18-27 and 44-51 are under prosecution.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-6, 8-10, 18-23, 25-27 and 44-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Walt et al. (U.S. Patent No. 6,327,410 B1, filed 11 September 1998) and Brenner (U.S. Patent No. 5,863,722, filed 7 June 1995).

Regarding Claim 1, Walt et al. teach an array composition comprising: a substrate with a surface comprising: discrete sites; a population of microspheres comprising at least a first and a second subpopulation wherein each subpopulation comprises a bioactive agent, wherein said microspheres are distributed on said surface (Column 3, lines 35-45) and wherein the array comprises at least one fiducial i.e. marker bead (Column 19, lines 2-5) wherein at least one subpopulation (e.g. a fiducial subpopulation) comprises non-optical signature encoding e.g. size, shape and/or dimension of the microspheres and/or optical fibers (Column 19, lines 6-30) which clearly suggests that the subpopulation of fiducials does not have an optical signature. However, they do not specifically teach that the subpopulation of fiducials does not have an optical signature. However, microspheres without optical signatures were well known in the art at the time the claimed invention was made as taught by Brenner et al (Column 9, lines 10-65).

Brenner et al teach a similar array composition comprising: a substrate with a surface comprising discrete sites; and a population of microspheres comprising at least a first and second subpopulation wherein each subpopulation comprises a bioactive agent wherein the microspheres are distributed on said surface wherein the microsphere does not comprise an optical signature and wherein microspheres size and shape are selected based on experimental design (Column 9, lines 62-65; Column 19, line 20-49; and Column 21, line 15-Column 22, line 61) but they do not teach the array composition comprises at least one fiducial. However,

array compositions comprising at least one subpopulation of fiducials were well known in the art as taught by Walt et al (Column 18, line 59-Column 19, line 30).

It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the microspheres not having an optical signature as taught by Brenner et al and the non-optical signature encoding taught by Walt et al to the microsphere compositions of Walt et al and to provide at least one subpopulation of microsphere without an optical signature thereby eliminating the need to provide optical signatures on all the microspheres for the obvious benefits of simplicity. One skilled in the art would have been further motivated to modify the microspheres of Walt et al by replacing the optical signature microspheres of one subpopulation with non-labeled microspheres to be used to detect labeled targets wherein only microspheres bound to labeled targets are detected for the obvious benefits of target-specific detection.

Alternatively, it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the composition of Brenner et al by adding at least one subpopulation of fiducials as taught by Walt et al to thereby spatially differentiate between subpopulations based on the importance of spatial differentiation taught by Walt (Column 19, lines 2-5).

Regarding Claim 2, Walt et al. teach the array wherein each subpopulation comprises a unique optical signature (Column 3, lines 40-42).

Regarding Claim 3, Walt et al. teach the array wherein each subpopulation comprises an identifier binding ligand that will bind a decoder binding ligand such that the identification of the bioactive agent can be elucidated (Column 7, line 55-Column 8, lines 19).

Regarding Claim 4, Walt et al. teach the array wherein said substrate is a fiber optic bundle (Column 5, lines 24-31) and the fiducial is a fiducial fiber i.e. fiber having a different diameter (Column 19, lines 13-15).

Regarding Claim 5, Walt et al. teach the array wherein said substrate is a fiber optic bundle (Column 5, lines 24-31) and said array comprises at least three non-linear fiducials each of which is a fiducial fiber i.e. the fiducial fibers of differing size denote subarrays and the array of Walt et al comprises at least three sub-arrays (Column 18, line 65-Column 19, line 2 and lines 13-15).

Regarding Claim 6, Walt et al. teach the array wherein said fiducial has a different shape i.e. fiber having a different diameter (Column 19, lines 13-15).

Regarding Claim 8, Walt et al. teach the array wherein the fiducial is a fiducial bead i.e. marker bead (Column 19, lines 2-5).

Regarding Claim 9, Walt et al. teach the array wherein said bioactive agents are nucleic acids (Column 9, lines 41-43).

Regarding Claim 10, Walt et al. teach the array wherein said bioactive agents are proteins (Column 8, lines 35-38).

Regarding Claim 18, Walt et al. teach a method of making an array composition comprising: forming a substrate with a surface comprising individual sites; and distributing microspheres on said surface such that said individual sites contain microspheres (Column 17, lines 11-53) wherein said microspheres comprise at least a first and a second subpopulation each comprising a bioactive agent (Column 3, lines 35-45) and incorporating at least one fiducial (Column 19, lines 2-5) wherein additional, non-optical signature encoding, is used e.g. size, shape and/or dimension of the microspheres and/or optical fibers (Column 19, lines 6-30) which clearly suggests that the subpopulation of fiducials does not have an optical signature. However, they do not specifically teach that the subpopulation of fiducials does not have an optical signature. However, microspheres without optical signatures were well known in the art at the time the claimed invention was made as taught by Brenner et al (Column 9, lines 10-65).

Brenner et al. teach a similar method of making an array composition comprising: forming a substrate with a surface comprising individual sites; and distributing a population of microspheres comprising at least a first and second subpopulation wherein each subpopulation comprises a bioactive agent wherein the microspheres are distributed on said surface wherein the microsphere does not comprise an optical signature and wherein microspheres size and shape are selected based on experimental design (Column 9, lines 62-65; Column 19, line 20-49; and Column 21, line 15-Column 22, line 61).

It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the microspheres not having an optical signature as taught by Brenner et al and the non-optical signature encoding taught by Walt et al to the microsphere compositions of Walt et al and to provide at least one subpopulation of microsphere without an optical signature thereby eliminating the need to provide optical signatures on all the microspheres for the obvious benefits of simplicity. One skilled in the art would have been further motivated to modify the microspheres of Walt et al by replacing the optical signature microspheres of one subpopulation with non-labeled microspheres to be used to detect labeled targets wherein only microspheres bound to labeled targets are detected for the obvious benefits of target-specific detection.

Alternatively, it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the composition of Brenner et al by adding at least one subpopulation of fiducials as taught by Walt et al to thereby spatially differentiate between subpopulations based on the importance of spatial differentiation taught by Walt (Column 19, lines 2-5).

Regarding Claim 19, Walt et al. teach the method wherein each subpopulation comprises an identifier binding ligand that will bind a decoder binding ligand such that the identification of the bioactive agent can be elucidated (Column 7, line 55-Column 8, lines 19).

Regarding Claim 20, Walt et al. teach the method wherein each subpopulation comprises a unique optical signature for identification and elucidation of the bioactive agent (Column 13, lines 8-24).

Regarding Claim 21, Walt et al. teach the method wherein said substrate is a fiber optic bundle (Column 5, lines 24-31) and the fiducial is a fiducial fiber i.e. fiber having a different diameter (Column 19, lines 13-15).

Regarding Claim 22, Walt et al. teach the method wherein said substrate is a fiber optic bundle (Column 5, lines 24-31) and said array comprises at least three non-linear fiducials each of which is a fiducial fiber i.e. the fiducial fibers of differing size denote subarrays and the array of Walt et al comprises at least three sub-arrays (Column 18, line 65-Column 19, line 2 and lines 13-15).

Regarding Claim 23, Walt et al. teach the method wherein said fiducial has a different shape i.e. fiber having a different diameter (Column 19, lines 13-15).

Regarding Claim 25, Walt et al. teach the method wherein the fiducial is a fiducial bead i.e. marker bead (Column 19, lines 2-5).

Regarding Claim 26, Walt et al. teach the method wherein said bioactive agents are nucleic acids (Column 9, lines 41-43).

Regarding Claim 27, Walt et al. teach the method wherein said bioactive agents are proteins (Column 8, lines 35-38).

Regarding Claim 44, Walt et al teach the array of Claim 1 wherein said discrete sites are wells (Column 17, lines 38-46).

Regarding Claim 45, Walt et al teach the array of Claim 1 wherein the microspheres are randomly distributed on said substrate (Column 17, lines 47-53).

Regarding Claim 46, Walt et al teach the method of Claim 18 wherein said discrete sites are wells (Column 17, lines 38-46).

Regarding Claim 47, Walt et al teach the method of Claim 18 wherein the microspheres are randomly distributed on said substrate (Column 17, lines 47-53).

Regarding Claim 48, Walt et al teach the method of Claim 19 wherein the identifier binding ligand is a protein (Column 8, lines 35-38).

Regarding Claim 49, Walt et al teach the method of Claim 19 wherein the identifier binding ligand is a nucleic acid (Column 9, lines 41-45).

Regarding Claim 50, Walt et al teach the array of Claim 3 wherein the identifier binding ligand is a protein (Column 8, lines 35-38).

Regarding Claim 51, Walt et al teach the array of Claim 3 wherein the identifier binding ligand is a nucleic acid (Column 9, lines 41-45).

Response to Arguments

5. Applicant argues that Brenner et al do not teach or suggest at least one subpopulation not having an optical signature. The argument has been considered but is not found persuasive because Brenner et al do not teach their microsphere have an optical signature. The claims are drawn to an array and method comprising microsphere subpopulations wherein at least one of the subpopulations does not have an optical signature. The "at least one" encompasses the microsphere subpopulations of Brenner et al where none of the subpopulations have an optical signature. Brenner et al describe their microspheres comprising tag sequences (Column 9, lines 10-65) wherein the tag sequences comprise oligonucleotides (Column 6, line 15-Column 7, line 65). Nowhere do Brenner et al describe the microspheres as comprising an optical signature. Because the claimed microspheres encompass microsphere subpopulations wherein none of the subpopulations have an optical signature and because none of the microspheres of Brenner et al have an optical signature, the microspheres of Brenner et al are encompassed by the instantly claimed invention.

Applicant argues that there is not suggestion or motivation within the teachings of Walt et al and Brenner et al to modify or combine their teachings. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of

ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, as stated above, Walt et al provide a motivation to apply their fiducial subpopulation to the array and method of Brenner et al i.e. thereby spatially differentiate between the subpopulations which they teach is important (Walt et al, Column 19, lines 2-5). As such, one of ordinary skill in the art would have been motivated to apply the fiducial subpopulation of Walt et al to the array and method of Brenner et al based on the importance of spatial differentiation taught by Walt et al (Column 19, lines 2-5). Furthermore, it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the microspheres not having an optical signature as taught by Brenner et al and the non-optical signature encoding taught by Walt et al and to provide at least one subpopulation of microsphere without an optical signature thereby eliminating the need to provide optical signatures for at least one subpopulation of microspheres for the obvious benefits of simplicity. The courts have stated that it would be obvious to omit an element when a function attributed to said element is not desired or required (see Ex parte Wu, 10 USPQ 2031).

Applicant argues that the examiner has failed to point to anything specific in the cited references that would suggest or provide motivation to combine the teachings of Walt et al and Brenner et al. The argument has been considered but is not found persuasive for the reasons stated directly above wherein citations of motivation and suggestion are clearly provided.

Applicant argues that the examiner has used impermissible hindsight to conclude that the combination would have provided motivation. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

6. Claims 7 and 24 rejected under 35 U.S.C. 103(a) as being unpatentable over Walt et al (U.S. Patent No. 6,327,410, filed 11 September 1998) and Brenner (U.S. Patent No. 5,863,722, filed 7 June 1995) as applied to Claims 1 and 18 above and further in view of Augenlicht (U.S. Patent No. 4,981,783).

Regarding Claim 7, Walt et al. teach an array composition comprising: a substrate with a surface comprising discrete sites; a population of microspheres comprising at least a first and a second subpopulation wherein each subpopulation comprises a bioactive agent, wherein said microspheres are distributed on said surface (Column 3, lines 35-45) and wherein the array comprises at least one fiducial i.e. marker bead (Column 19, lines 2-5) wherein additional, non-optical signature encoding, is used e.g. size, shape and/or dimension of the microspheres and/or optical fibers (Column 19, lines 6-30) wherein the marker bead denotes each subarray, but they do not specifically teach the fiducial is a defined edge of said substrate and they do not specifically teach at least one microsphere subpopulation does not have an optical signature. However, microspheres without optical signatures were well known in the art at the time the claimed invention was made as taught by Brenner et al. who teach a similar array composition wherein the microsphere does not comprise an optical signature and wherein microspheres size and shape are selected based on experimental design (Column 9, lines 62-65; Column 19, line 20-49; and Column 21, line 15-Column 22, line 61). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the microspheres not having an optical signature as taught by Brenner et al and the non-optical signature encoding taught by Walt et al to the microsphere compositions of Walt et al and to provide at least one subpopulation of microsphere without an optical signature thereby eliminating the need to provide optical signatures on all the microspheres for the obvious benefits of simplicity. One skilled in the art would have been further motivated to modify the microspheres of Walt et al by replacing the optical signature microspheres of one subpopulation with non-labeled microspheres to be used to detect labeled targets wherein only

microspheres bound to labeled targets are detected for the obvious benefits of target-specific detection. Additionally, Augenlicht teach similar method comprising: forming a substrate comprising discrete sites; a population of bioactive agents comprising at least a first and second subpopulation of bioactive agents distributed on said surface; and at least one fiducial wherein said fiducial is a defined edge of said substrate wherein the fiducial placement facilitates automated detection and identification of the bioactive agent (Column 8, lines 15-26 and Fig. 1). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the fiducial placement taught by Augenlicht to the method of making an array composition of Walt et al and to place the fiducials to define an edge of the array to thereby align the array for detection as taught by Augenlicht (Column 7, lines 33-35) for the expected benefit facilitating detection and identification of the bioactive agent as taught by Augenlicht (Column 8, lines 15-26).

Regarding Claim 24, Walt et al. teach a method of making an array composition comprising: forming a substrate with a surface comprising individual sites; and distributing microspheres on said surface such that said individual sites contain microspheres (Column 17, lines 11-53) wherein said microspheres comprise at least a first and a second subpopulation each comprising a bioactive agent (Column 3, lines 35-45) and incorporating at least one fiducial (Column 19, lines 2-5) wherein additional, non-optical signature encoding, is used e.g. size, shape and/or dimension of the microspheres and/or optical fibers (Column 19, lines 6-30) wherein the marker bead denotes each subarray, but they do not specifically teach the fiducial is a defined edge of said substrate and they do not specifically teach at least one microsphere subpopulation does not have an optical signature. However, microspheres without optical signatures were well known in the art at the time the claimed invention was made as taught by Brenner et al. who teach a similar array composition wherein the microsphere does not comprise an optical signature and wherein microspheres size and shape are selected based on experimental design (Column 9, lines 62-65; Column 19, line 20-49; and Column 21, line 15-

Column 22, line 61). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the microspheres not having an optical signature as taught by Brenner et al and the non-optical signature encoding taught by Walt et al to the microsphere compositions of Walt et al and to provide at least one subpopulation of microsphere without an optical signature thereby eliminating the need to provide optical signatures on all the microspheres for the obvious benefits of simplicity. One skilled in the art would have been further motivated to modify the microspheres of Walt et al by replacing the optical signature microspheres of one subpopulation with non-labeled microspheres to be used to detect labeled targets wherein only microspheres bound to labeled targets are detected for the obvious benefits of target-specific detection. Additionally, Augenlicht teach similar method comprising: forming a substrate comprising discrete sites; a population of bioactive agents comprising at least a first and second subpopulation of bioactive agents distributed on said surface; and at least one fiducial wherein said fiducial is a defined edge of said substrate wherein the fiducial placement facilitates automated detection and identification of the bioactive agent (Column 8, lines 15-26 and Fig. 1). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the fiducial placement taught by Augenlicht to the method of making an array composition of Walt et al and to place the fiducials to define an edge of the array to thereby align the array for detection as taught by Augenlicht (Column 7, lines 33-35) for the expected benefit facilitating detection and identification of the bioactive agent as taught by Augenlicht (Column 8, lines 15-26).

Response to Arguments

7. Regarding Claims 7 and 24, Applicant reiterates the arguments discussed above i.e. that none of the cited prior art teach or suggest use of at least one subpopulation of microspheres within a random array that does not contain an optical signature and that none of the prior art provides suggestion or motivation to combine their teachings. The arguments have been considered but are not found persuasive as discussed in detail above. Furthermore, Augenlicht specifically teaches their fiducials and the placement of the fiducials facilitates detection and identification (Column 7, lines 33-35 and Column 8, lines 15-26). Therefore, it

would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the fiducials and their placement for the expected benefits of facilitating detection and identification of the bioactive agent as taught by Augenlicht (Column 7, lines 33-35 and Column 8, lines 15-26).

8. Claims 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Walt et al. (U.S. Patent No. 6,327,410, filed 11 September 1998) and Brenner (U.S. Patent No. 5,863,722, filed 7 June 1995) as applied to Claim 1 above and further in view of Chee et al. (U.S. Patent No. 5,795,716, issued 18 August 1998).

Regarding Claim 11, Walt et al. teach an array composition comprising: a substrate with a surface comprising discrete sites; a population of microspheres comprising at least a first and a second subpopulation wherein each subpopulation comprises a bioactive agent, wherein said microspheres are distributed on said surface (Column 3, lines 35-45) and wherein the array comprises at least one fiducial i.e. marker bead (Column 19, lines 2-5) wherein additional, non-optical signature encoding, is used e.g. size, shape and/or dimension of the microspheres and/or optical fibers (Column 19, lines 6-30) wherein the marker bead denotes each subarray, but they do not specifically teach the fiducial is a defined edge of said substrate and they do not specifically teach at least one microsphere subpopulation does not have an optical signature. However, microspheres without optical signatures were well known in the art at the time the claimed invention was made as taught by Brenner et al. who teach a similar array composition wherein the microsphere does not comprise an optical signature and wherein microspheres size and shape are selected based on experimental design (Column 9, lines 62-65; Column 19, line 20-49; and Column 21, line 15-Column 22, line 61). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the microspheres not having an optical signature as taught by Brenner et al and

the non-optical signature encoding taught by Walt et al to the microsphere compositions of Walt et al and to provide at least one subpopulation of microsphere without an optical signature thereby eliminating the need to provide optical signatures on all the microspheres for the obvious benefits of simplicity. Additionally Walt et al teach the array is analyzed using a computer and computer software which strongly suggests that a computer code receives and registers data images (Column 16, lines 10-20 and 45-49) but they do not specifically teach a computer code receives and registers as first data image. Chee et al. teach an array composition comprising a substrate with a surface comprising discrete sites and a population of bioactive agents (Column 3, lines 34-47) and further comprising computerized analysis using a computer readable memory comprising: a computer code that receives a first data image; and a computer code that registers said first data image (Claim 1). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the composition of Walt et al. with the computer readable memory of Chee et al. and to use the fiducial to position-specifically receive and register a first data image via the computer code for the expected benefit of computer aided improved analysis of bioagents as taught by Chee et al. (Column 1, lines 55-67).

Regarding Claim 12, Chee et al. teach the computer readable memory further comprises a computer code that receives a second data image; a computer code that registers said second data image; and a computer code that compares said first and second data image (Claim 1). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to further modify the array composition of Walt et al. with the computer readable memory further comprising a computer code that receives and registers a second data image and compares the first and second data images for the expected benefit of allowing image analysis and statistical analysis of multiple data files simultaneously as taught by Chee et al. (Column 22, lines 23-32).

Response to Arguments

9. Applicant argues that Chee et al does not teach or suggest use of microspheres on the surface of substrate or the use of fiducials in an array comprising microspheres and there is no suggestion from either Walt et al or Chee et al to combine their teaching. Hence, Applicant argues, the examiner has used impermissible "common sense" to conclude that the combination of the two references leads to improved analysis of bioagents.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, as state in the First Office Action and reiterated above, Chee et al clearly provide motivation to apply their computer code for receiving, registering and comparing data images to the array of Walt et al i.e. their computer code provide improved methods of analyzing assay data (Column 1, lines 55-67) and allows image analysis and statistical analysis of multiple data files simultaneously as taught by Chee et al. (Column 22, lines 23-32).

Double Patenting

10. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

11. Claims 1 are 3-10 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 37-40, 44-45 of copending Application No. 09/189,543 in view of Walt et al (U.S. Patent No. 6,327,410, filed 11 September 1998). Although the conflicting claims are not identical, they are not patentably distinct from each other because both sets of claims are drawn to an array composition comprising a substrate comprising discrete sites and a population of microspheres randomly distributed on the sites and differ only in the instant composition further includes a fiducial. However, array composition comprising fiducials were well known in the art at the time the claimed invention was made as taught by Walt et al who teach that fiducials are important for spatially differentiating between subpopulations (Walt et al, Column 19, lines 2-5). As such, it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the '543 composition by adding at least one fiducial to thereby differentiate between microsphere subpopulations based on the importance of differentiation as taught by Walt et al (Column 19, lines 2-5). The claim set further differ in that the '543 composition is drawn to a density of discrete sites being at least 100 sites per mm^2. However, the density recited in the '543 composition is the preferred density of the instant invention as taught at page 8, lines 7-12 of the instant specification. The instant claims are broadly drawn to a substrate comprising discrete sites and the specification further defines the substrate by teaching a preferred discrete site density of at least 100 sites per mm^2. As such, the instant claims encompass the density recited in the '543 composition. Because the instant claims encompass the density recited in the '543 composition and because Walt et al provide a motivation to modify the '543 composition by adding at least one fiducial, the instantly claimed composition is not patentably distinct from that claimed in the '543 application.

12. This is a provisional obviousness-type double patenting rejection.

Conclusion

13. No claim is allowed.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to BJ Forman whose telephone number is (703) 306-5878. The examiner can normally be reached on 6:30 TO 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Jones can be reached on (703) 308-1152. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-4242 for regular communications and (703) 308-8724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0196.

BJ Forman, Ph.D.
Patent Examiner
Art Unit: 1634
April 14, 2003